IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Satoshi Seo et al.	Art Unit	: 1774
Serial No.	: 10/622,504	Examiner	: Dawn Garrett
Filed	: July 21, 2003	Conf. No.	: 4688
Title	: MATERIAL FOR AN ELECTROLUMINESCENCE ELEMENT AND ELECTROLUMINESCENCE ELEMENT USING THE SAME		

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Commissioner for Patents
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REMARKS ACCOMPANYING RCE

Claims 1-32 are pending, with claims 1-22, 27 and 30 being independent. Claims 1, 2, 4-13 and 15-22 have been withdrawn from consideration, leaving claims 3, 14 and 23-32, including independent claims 3, 14, 27 and 30, under consideration.

Claims 3, 14 and 23-32 have been rejected as being unpatentable over Bernius (U.S. Publication No. 2002-0153523) in view of Kono (U.S. Patent No. 5,917,693) and Nakayama (U.S. Patent No. 5,943,154). Applicant again requests reconsideration and withdrawal of this rejection because, absent an impermissible hindsight reconstruction of the invention, there would have been no motivation to combine Bernius, Kono and Nakayama in the manner set forth in the rejection.

In the advisory action, the Examiner indicates that applicant's arguments are not persuasive in the absence of data or evidence supporting the arguments. In response, applicant has cited the Mathine and Pfeiffer references in the information disclosure statement that accompanies these remarks. As set forth below, these references further support applicant's position.

As previously noted, the rejection fails to show that any motivation exists to combine Bernius, Kono and Nakayama in the manner set forth in the rejection. Instead, the rejection merely indicates it would have been obvious to use the doped polyaniline of Kono because Kono teaches that the doped polyaniline is an electrically conductive material. Thus, the rejection, in essence, argues that the material of Kono "could" be substituted for the material of Bernius and that, for this reason, one of ordinary skill in the art "would" have made the substitution.

However, it is well established that the mere suitability of an alternative is insufficient to provide the required motivation to combine. Rather, the rejection must establish that there would have been some affirmative motivation to do so. Such a motivation simply does not exist.

As noted in applicant's prior response, Kono is directed to a secondary electric cell, and does not describe or suggest that polyaniline doped with TCNQ may be used for an electroluminescence element, such as the organic light emitting diodes of Bernius, or for a buffer layer of the electroluminescence element. As such, Kono's mere use of polyaniline doped with TCNQ in a secondary electric cell would not have motivated one of ordinary skill in the art to modify the polyaniline used in the organic light emitting diodes of Bernius.

Moreover, Bernius and Kono take substantially different approaches, such that it would not necessarily be apparent that the material of Kono could even be substituted for that of Bernius, let alone that one or ordinary skill would have been motivated to make the substitution. In particular, Bernius shows that polyaniline is doped with a strong organic acid, such as poly(styrenesulfonic acid), which is a Bronsted-Lowry acid (i.e., a substance which donates a proton, also referred to as a proton donor). ***As shown in Fig. 3(a) of Mathine, a Bronsted-Lowry acid such as is used by Bernius (i.e., poly(styrenesulfonic) acid or "PSS") turns into a negative charge state by donating a proton to poly(ethylene dioxythiophene) (PEDOT), where $-SO_3H$ loses a proton and is changed to $-SO_3$, while PEDOT accepts the proton and has a positive charge.***

By contrast, as set forth at page 1076 of Pfeiffer, the TCNQ taught by Kono is a Lewis acid (i.e., a substance which removes an electron from a hole conducting state to generate a free hole, which also may be referred to as an electron receptor. ***In Pfeiffer, F4-TCNQ, which is one of the compounds represented by the general formula [3] set forth in the claims, is described as a strong electron acceptor.*** F4-TCNQ may not be a proton donor since it does not have hydrogen atoms.

Thus, Bernius discloses that a conductivity of polyaniline is increased by doping with the Bronsted-Lowry acid such as poly(styrenesulfonic) acid, which can donate a proton to polyaniline. Meanwhile, Kono discloses that a conductivity of polyaniline is increased by

doping with the Lewis acid such as TCNQ, which can accept an electron pair from polyaniline. Thus, the conductivity of polyaniline is increased by quite different mechanisms between the dopant of Bernius and that of Kono. Accordingly, there would have been no motivation to replace the strong organic acid taught by Bernius with the TCNQ taught by Kono (or that taught by Nakayama), and the rejection should be withdrawn.

Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

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